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NEWSLETTER OF THE LONDON CHAPTER,
ONTARIO ARCHAEOLOGICAL SOCIETY
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September, 1995

95-5

DEEP FREEZE: ARCHAEOLOGICAL RESEARCH INTO THE PREHISTORIC INUIT OF CANADA'S HIGH ARCTIC

Robert Park, University of Waterloo
Thursday, October 12th, 7:30 PM

This month we anticipate the cold of winter by returning to the High Arctic with Robert Park, who will review for us the work that he has been doing in that part of the world over the last few years. Bring you parkas and mitts! As always, the meeting will be held at Grosvenor Lodge, so come out early for some conversation, coffee and cookies.

November Speaker Night: Next month Christine White, for Western, will bring us up to date on some of her current research (and she can make it too thanks to the alignment of the stars, and more importantly, a babysitter!). November's speaker night will be on Thursday the 9th, at the usual time and place.

ANNUAL RATES

Individual.....	$15.00
Family.....	$18.00
Institutional.....	$21.00
Subscriber.....	$17.00

Chapter Executive

EXECUTIVE REPORT

Nothing much new to report on the Executive front this month: the normal cycle of activities that comes with the fall (speaker nights, planning to attend the OAS annual conference, etc.) keeps the Executive busy. And, as is the case in the fall, the Chapter needs to start planning to pull together a slate for the next's year's Chapter Executive. As always, there are the positions of president, vice-president, treasurer and secretary to fill, as well as 1 to 100 directors (or somewhere in between)! Pat has been making grumbling noises, not dis-similar to the newsletter editor, that nine years is long enough for one person to serve on the Executive (so much for the President-for-life gambit!). So, if you would be interested in becoming active on the Chapter's Executive, please let us know. The Nominating committee this year consists of Christine Dodd (Day: 438-9595; Evenings: 434-8853). So please let Christine know if you want to run, and if you don't, avoid Christine's pleasant inquiries about your plans for 1996!

Holy Cow! Neal emerged from the dark recesses of the editor's dungeon, with manuscript in hand!! Yes, it appears that Neal finally finished editing the Greg Curnoe First Nations historical directory, and it is about to head off to the printer. This means (knock on wood!) that the Chapter will have a new volume of the Occasional Publications series ready in the next few months, um, assuming we can afford to produce it! Keep watching the pages of this newsletter for more information.

SOCIAL REPORT

The Chapter's summer picnic, held at Longwoods Road conservation area, was a success for the gang who made it out. Things were a little chilly, which made a brisk walk along the trails just about right! Unfortunately only a relatively small number of London Chapter and Thames Valley Trails members actually attended the picnic. Was the timing off? Or location? Or was it the Fates? Please let us know why you didn't attend, and if there is something we can offer next summer that would more likely entice you out for a Saturday afternoon.

While early yet, we do have a volunteer to host this year's Christmas party. Christine and Dana will welcome you to their home sometime this December. All the details and date still need to be worked out, so keep watching for further information.

EDITOR'S REPORT

This month we feature yet another contribution from the MTO southwest office. Peter Timmins provides us with a report on a late Paleo-Indian site in Haldimand-Norfolk, offering up some very interesting observations on site variability and function.

Once again the Chapter coffers are dwindling down to a couple of articles right now. So, if you have a small (or not so small) site report or study you'd like to lay below our cover, please fire it in. We promise relatively rapid turn around in producing the article.

STELCO 1:
A LATE PALEO-INDIAN HI-LO SITE IN THE REGION OF HALDIMAND-NORFOLK, ONTARIO

Peter A. Timmins

INTRODUCTION

The Stelco 1 site was located by Ontario Ministry of Transportation (MTO) archaeologists during an archaeological assessment conducted prior to the widening of Highway 6 between Port Dover and Jarvis (Timmins 1994a). The site is a component of the Hi-Lo phase, a poorly understood Late Paleo-Indian manifestation guess-dated to ca. 10,000 B.P. (Ellis and Deller 1982; Fitting 1963a, 1963b; Parker 1986a, 1986b). Most known Hi-Lo components occur on large multi-component sites where it is often difficult to separate non-diagnostic artifacts from the different occupations. Stelco 1 has produced only Hi-Lo diagnostics, which suggests that it may be a single component site with potential to provide important data on the nature of Hi Lo tool assemblages. Many tool types reported by Ellis and Deller (1982) and Parker (1986a, 1986b) are present in the Stelco 1 assemblage, helping to confirm the Hi Lo association of these tool forms. Further, the site provides additional data on the prehistoric use of Haldimand (Bois Blanc Formation) chert, supporting suggestions that this chert was a preferred lithic raw material among Early Holocene groups in southwestern Ontario (Moerschfelder 1985: 13; Parker 1986a, 1986b).

The site is located approximately 6 km north of Lake Erie on the east side of Highway 6 (Figures 1 and 2). Upon its discovery we determined that the site straddled the MTO property line and that the western edge of the site would be impacted by construction. Accordingly, salvage excavation was conducted on that portion of the site on the MTO right-of-way. The remaining portion of the site was designated an Environmentally Sensitive Area and was protected during construction.

PHYSICAL SETTING AND PALEOENVIRONMENT

The physical setting of the Stelco 1 site is unremarkable. It lies on fairly level terrain surrounded by flat to gently undulating land. The location is only slightly elevated in relation to its immediate surroundings. The soils are lacustrine heavy clay and are not well drained (Agriculture Canada 1985). Nanticoke Creek flows 575 m to the northeast, but there is no readily apparent water source close at hand. The Lundy drain, a ditch located 400 metres to the southwest, may follow a relic creek channel. In short, the reason that people chose to camp in this particular location is not readily apparent. Given the distance to water, flat topography, heavy clay soils, and poor drainage, most predictive archaeological potential models would rate the potential of this location as low.

The local environment was obviously different 10,000 years ago and it is possible that the site location may have been more attractive at that time. At 10,000 B.P. modern vegetation patterns had

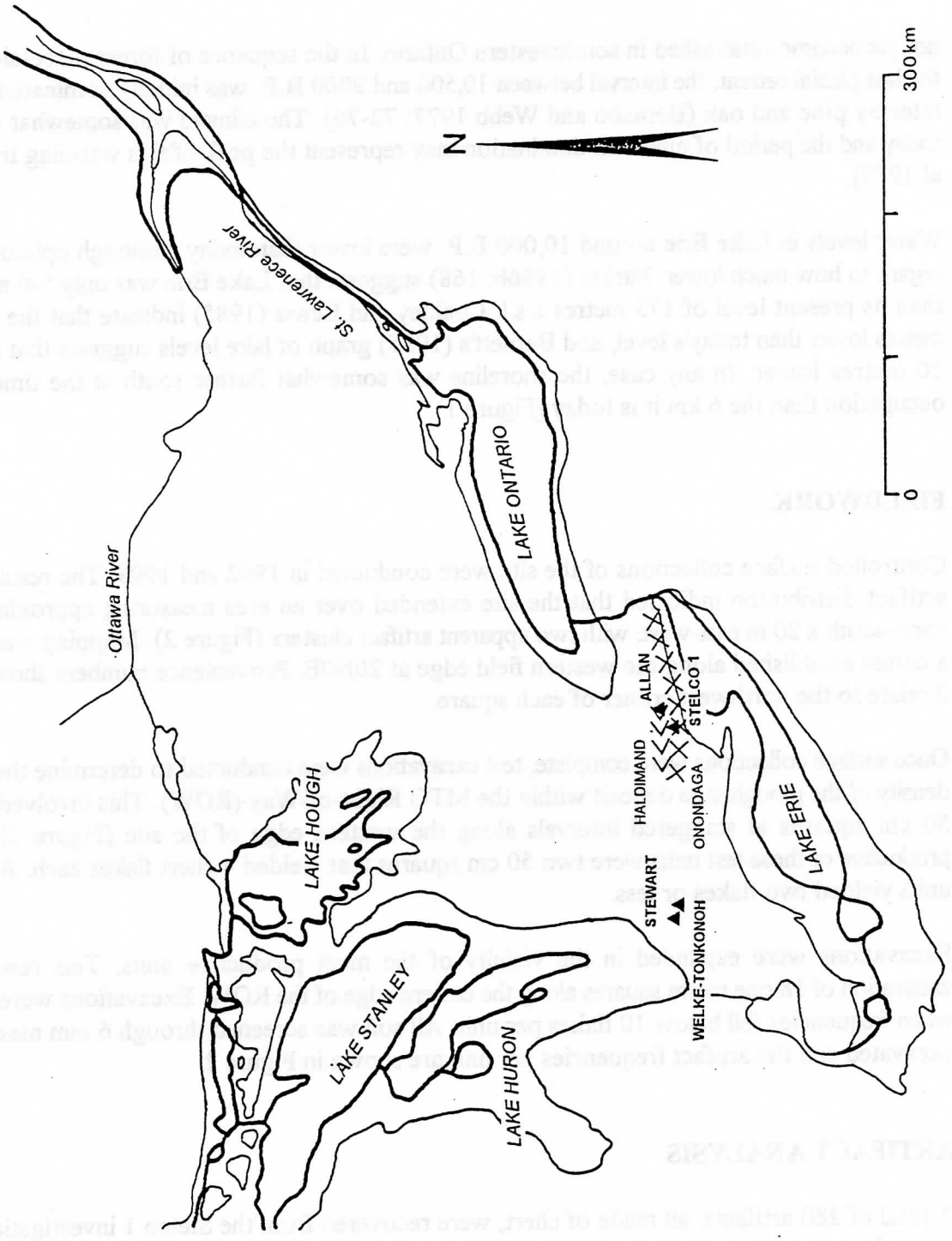


Figure 1: Selected Hi-Lo Sites. Chert sources and approximate lake levels around 10,000 B.P. (in part after Karrow and Warner 1990).

not yet become established in southwestern Ontario. In the sequence of forest succession following the last glacial retreat, the interval between 10,500 and 9000 B.P. was initially dominated by pine and later by pine and oak (Bernabo and Webb 1977: 72-76). The climate was somewhat warmer than today and the period of pine-oak domination may represent the peak of this warming trend (Fritz et al 1975).

Water levels in Lake Erie around 10,000 B.P. were lower than today, although opinions vary with regard to how much lower. Parker (1986b: 168) suggests that Lake Erie was only 5-6 metres lower than its present level of 173 metres a.s.l. Coakley and Lewis (1985) indicate that the lake was 15 metres lower than today's level, and Barnett's (1985) graph of lake levels suggests that it was about 20 metres lower. In any case, the shoreline was somewhat farther south at the time of the site occupation than the 6 km it is today (Figure 1).

FIELDWORK

Controlled surface collections of the site were conducted in 1992 and 1993. The resulting surface artifact distribution indicated that the site extended over an area measuring approximately 30 m north-south x 20 m east-west, with two apparent artifact clusters (Figure 2). Mapping was done from a datum established along the western field edge at 20N0E. Provenience numbers shown in Figure 2 relate to the northwest corner of each square.

Once surface collections were complete, test excavations were conducted to determine the extent and density of the ploughzone deposit within the MTO Right-of-Way (ROW). This involved excavating 50 cm squares at staggered intervals along the western edge of the site (Figure 2). The most productive of these test units were two 50 cm squares that yielded 4 chert flakes each. All other test units yielded two flakes or less.

Excavations were expanded in the vicinity of the most productive units. This resulted in the excavation of 18 one metre squares along the eastern edge of the ROW. Excavations were terminated when frequencies fell below 10 flakes per unit. All soil was screened through 6 mm mesh. The area excavated and the artifact frequencies per unit are shown in Figure 2.

ARTIFACT ANALYSIS

A total of 280 artifacts, all made of chert, were recovered from the Stelco 1 investigations. Unless otherwise noted, the artifacts are made of Haldimand chert. Catalogue numbers denoting provenience are shown in brackets when specific artifacts are discussed (i.e. N35W20).

Table 1: Stelco 1 Artifact Inventory		
Artifact Type	**f**	**%**
Debitage	241	86.1
Utilized Flakes	19	6.8
Scrapers	8	2.9
Retouched Flakes	7	2.5
Gravers	3	1.1
Core	1	.4
Projectile Point	1	.4
Total	280	100.2

Lithic Raw Materials

The Stelco 1 lithic assemblage is dominated by buff to white Haldimand chert which outcrops in the upper levels of the Lower Devonian Bois Blanc limestone formation in the Region of Haldimand-Norfolk (Eley and von Bitter 1989; Moerschfelder 1985; Parker 1986). A source of this material was discovered by Fred Moerschfelder in 1983 during extensive surveys conducted along Rogers Creek in North Cayuga and Oneida Townships, some 21 km northeast of the Stelco 1 site. According to Moerschfelder, Haldimand chert occurs *in situ* "along the Onondaga escarpment from the northern boundary of the Bois Blanc formation in Concession 1, Oneida [Twp.], south to a point just west of Decewsville" (Moerschfelder 1985: 9; see Figure 1). Many of the prehistoric quarry sources of this material have apparently been destroyed by modern quarry activity, but the existence of numerous Haldimand chert workshop sites in the area attests to the former presence of prehistoric quarries (Moerschfelder 1985).

At the Rogers Creek locality Moerschfelder reports that Haldimand chert was found on the surface "along the base and brow of the escarpment....in tremendous profusion in the form of cobbles and fractured pieces (1985: 8, 9). The prehistoric workshop sites associated with these sources have yielded few finished tools of Haldimand chert, although early stage biface rejects are relatively common (Moerschfelder 1985: 13). This pattern suggests that prehistoric groups were making only brief visits to the area to obtain chert and reduce it to biface blanks for easy transport.

There is also a very small amount of Onondaga chert in the Stelco 1 collection. Onondaga chert

comes from the Middle Devonian Onondaga Formation (Eley and von Bitter 1989: 17) and outcrops along the Onondaga escarpment near Villa Nova, about 13 km northwest of the Stelco 1 site. It is also available in several areas along the north shore of Lake Erie, between Peacock Point and the Niagara River.

Lithic Debitage

Of the 241 pieces of lithic debitage in the collection all but one are Haldimand chert. The exception is a single flake fragment of Onondaga chert.

The flakes were categorized according to flake type using primary, secondary, scraper retouch, shatter, and fragment categories (Table 2). Primary flakes are defined as flakes from cores, with platform to ventral surface angles around 90°. Secondary flakes are defined as flakes from biface manufacture and include flakes from biface thinning and biface finishing. Scraper retouch flakes are very small flakes that have been removed from from the bit ends of scrapers. They often exhibit flat worn platforms (remnants of the former scraping edge) and are markedly curved since they travel up the old working face of the parent tool. Shatter flakes are angular pieces of chert that appear to be incidental byproducts of core reduction, and fragmentary flakes are simply flakes lacking proximal ends (platforms).

Table 2 Stelco 1 Debitage Data

Flake Type	f	%
Primary	50	20.8
Secondary	61	25.3
Scraper Retouch	2	0.8
Fragments	123	51.0
Shatter	5	2.1
Total	241	100.0

The Stelco 1 sample is composed of similar percentages of primary flakes (20.8%) and secondary flakes (25.3%). This is a relatively high percentage of primary debitage and may reflect the proximity of the Haldimand chert outcrop. However, many of the flake fragments are very thin and are likely secondary flake fragments since they tend to break more easily than primary flakes. This suggests that secondary flakes are likely under-represented as presented in Table 2. The number of scraper retouch flakes is very low, given the dominance of scrapers in the overall assemblage as discussed below. This may reflect the difficulty of recovering such small flakes in heavy clay soils.

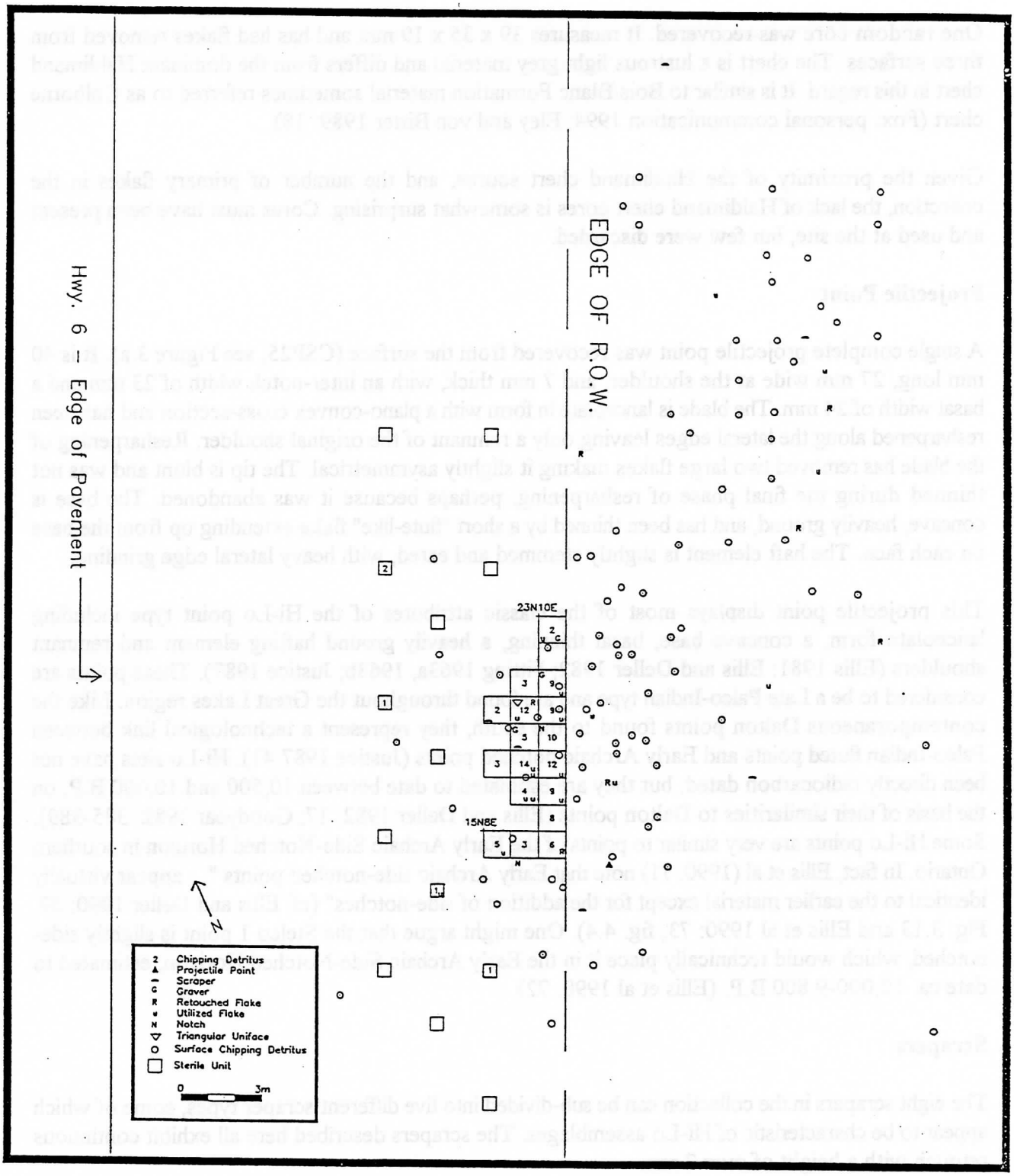


Figure 2: Stelco 1 Excavations and Artifact Distribution.

One random core was recovered. It measures 39 x 35 x 19 mm and has had flakes removed from three surfaces. The chert is a lustrous light grey material and differs from the dominant Haldimand chert in this regard. It is similar to Bois Blanc Formation material sometimes referred to as Colborne chert (Fox: personal communication 1994; Eley and von Bitter 1989: 18).

Given the proximity of the Haldimand chert source, and the number of primary flakes in the collection, the lack of Haldimand chert cores is somewhat surprising. Cores must have been present and used at the site, but few were discarded.

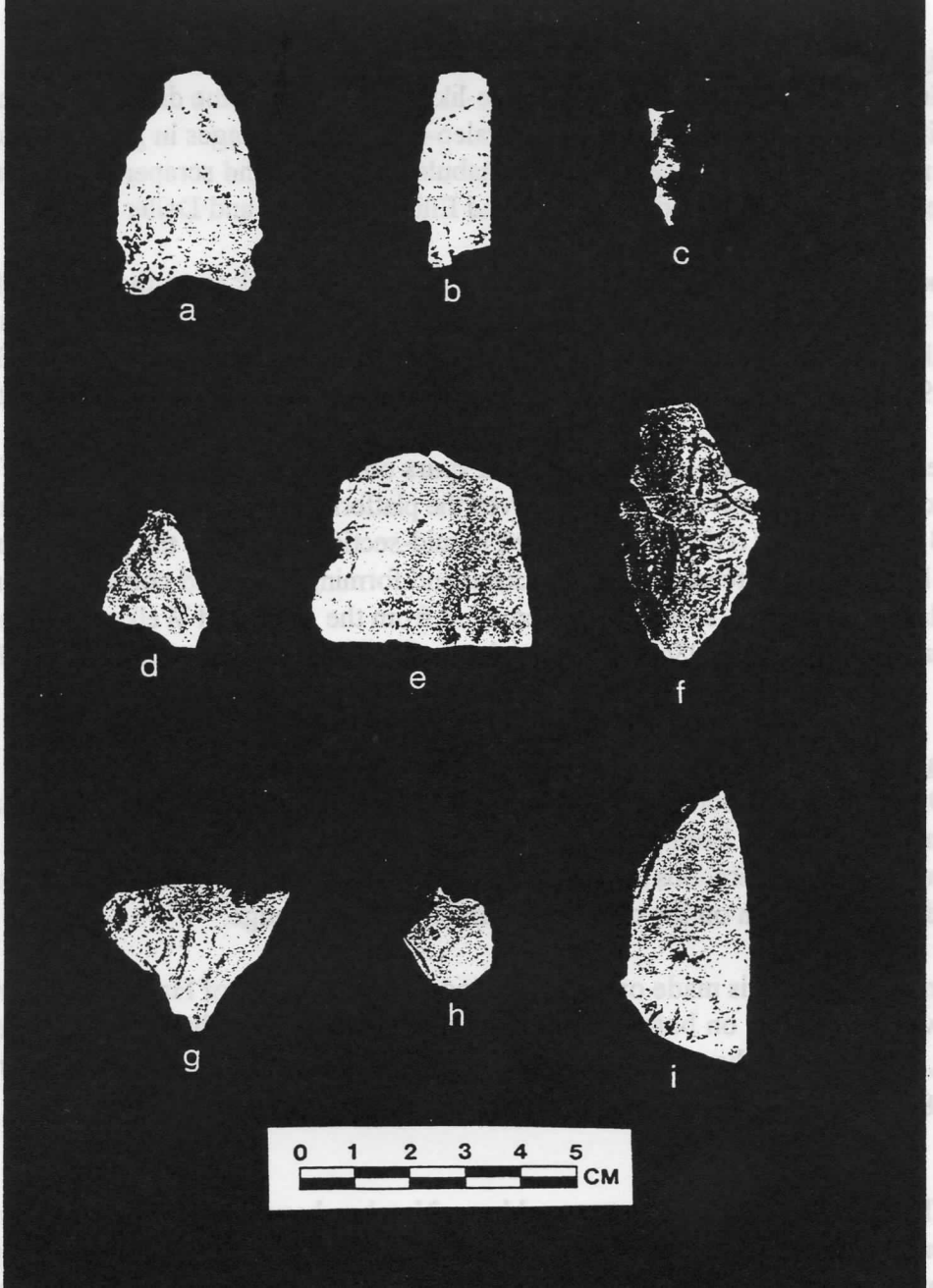
Projectile Point

A single complete projectile point was recovered from the surface (CSP25; see Figure 3.a). It is 40 mm long, 27 mm wide at the shoulder, and 7 mm thick, with an inter-notch width of 23 mm and a basal width of 24 mm. The blade is lanceolate in form with a plano-convex cross-section and has been resharpened along the lateral edges leaving only a remnant of the original shoulder. Resharpening of the blade has removed two large flakes making it slightly asymmetrical. The tip is blunt and was not thinned during the final phase of resharpening, perhaps because it was abandoned. The base is concave, heavily ground, and has been thinned by a short "flute-like" flake extending up from the base on each face. The haft element is slightly stemmed and eared, with heavy lateral edge grinding.

This projectile point displays most of the classic attributes of the Hi-Lo point type including lanceolate form, a concave base, basal thinning, a heavily ground hafting element and remnant shoulders (Ellis 1981; Ellis and Deller 1982; Fitting 1963a, 1963b; Justice 1987). These points are considered to be a Late Paleo-Indian type and are found throughout the Great Lakes region. Like the contemporaneous Dalton points found to the south, they represent a technological link between Paleo-Indian fluted points and Early Archaic notched points (Justice 1987:41). Hi-Lo sites have not been directly radiocarbon dated, but they are estimated to date between 10,500 and 10,000 B.P. on the basis of their similarities to Dalton points (Ellis and Deller 1982: 17; Goodyear 1982: 385-389). Some Hi-Lo points are very similar to points of the Early Archaic Side-Notched Horizon in southern Ontario. In fact, Ellis et al (1990: 71) note that Early Archaic side-notched points "... appear virtually identical to the earlier material except for the addition of side-notches" (cf. Ellis and Deller 1990: 59, Fig. 3.13 and Ellis et al 1990: 73, fig. 4.4). One might argue that the Stelco 1 point is slightly side-notched, which would technically place it in the Early Archaic Side-Notched Horizon, estimated to date ca. 10,000-9.800 B.P. (Ellis et al 1990: 72).

Scrapers

The eight scrapers in the collection can be sub-divided into five different scraper types, some of which appear to be characteristic of Hi-Lo assemblages. The scrapers described here all exhibit continuous retouch with a height of over 2 mm.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End Scrapers

End scrapers made on elongated blade-like flakes show some distinctive characteristics that may be diagnostic of Hi-Lo assemblages, or Paleo-Indian assemblages in general. These include end scrapers made on corner-struck flakes from tabular cores and end scrapers with spurs or points on the corners of their working edges (Deller and Ellis 1992; Ellis and Deller 1982).

One of the Stelco 1 specimens is made on an elongated flake struck from the corner of a tabular core of Haldimand chert. This tool is wedge shaped in cross-section with retouch on the dorsal surface of the distal end (Figure 3.b). Similar tools have been described by Parker (1986b: 88) and Ellis and Deller (1982: 13) from Hi-Lo contexts at the Allan and Welke-Tonkonoh sites, respectively.

Two other end scrapers display single pointed spurs on their working edges. One of these (CSP27) has retouch on the proximal end which removed the platform and isolated a single spur on one corner (Figure 3.c). The other (CSP51) is snapped in mid-section and lacks the proximal end. The extant fragment has continuous retouch along the distal end forming a pointed corner or spur. End scrapers with similar spurred corners have been recovered from the Allan and Welke-Tonkonoh sites (PEllis and Deller 1982: 14; arker 1986: 86). They also occur on earlier Paleo-Indian sites (Deller and Ellis 1992).

Side Scrapers

Of the two side scrapers in the collection one is made on a large, thick, primary flake of Haldimand chert struck from the corner of a tabular block core (CSP77, Figure 3.f). This tool displays retouch in two locations on one edge: ventral retouch on the proximal half forming a straight edge, and dorsal retouch on the distal half forming a convex edge.

The second side scraper is made on an expanding secondary flake of Haldimand chert (N20E08). It displays ventral retouch on both lateral edges, one of which is slightly concave, the other straight (Figure 3,.d). Neither of these side scraper forms appear to be documented in the few reported Hi-Lo assemblages from southern Ontario.

Notch

There is one notch in the assemblage. Notches have been recovered from other Hi-Lo components (e.g. Parker 1986: 85), but they are a common tool form in other time periods as well so they cannot be considered diagnostic. The Stelco 1 notch is made of a large primary flake with an 11 mm wide notch flaked into the ventral surface of one lateral edge (Figure 3.e).

Trianguloid Uniface

One distinctive tool is made on a markedly expanding secondary flake (N20E09). This specimen exhibits dorsal retouch on one lateral edge creating a sharp point at one distal corner (Figure 3.g). The opposite distal corner also has a point, created by retouch along the distal end and removal of a flake from the adjacent lateral edge. This tool shares some similarities with the pointed scrapers described by Ellis and Deller (1982: 14), but it is most similar to the trianguloid unifaces described by Parker (1986b: 88). Parker recovered 70 of these tools from the Allan site. Most of the

Allan site examples are made on corner-struck flakes with cortex adhering to their dorsal surfaces. They display steep retouch or use retouch on their distal ends (Parker 1986b: 89). The Stelco 1 example is a variation on this theme as it has retouch on only part of the distal and lateral edges with an apparent emphasis on the creation of pointed distal corners. Similar triangular unifaces have been found on Early Paleo-Indian sites such as Snary and Thedford II (Deller and Ellis 1992; Wortner and Ellis 1993).

Scraper/Planer

This tool (CSP95) is made on a large tabular block of Haldimand chert with retouch along one lateral edge. It is a relatively massive tool with a straight to slightly convex working edge that probably served a planing or heavy duty scraping function. Similar tools have not been described from Hi-Lo sites. Parker (1986b) describes some large unifaces that may have been used for heavy scraping tasks, but they are generally made on large spalls and are smaller and thinner than the Stelco 1 specimen.

Table 3 Stelco 1 Scraper Data

Form	Provenience	L	W	T	Retouch Location	Comments
End Scraper	N19E09	35	14	5	DD	On corner-struck primary flake
End Scraper	CSP27	21	14	4	PD	Has corner spur on working edge
End Scraper	CSP51	-	14	3	DD	Has pointed corner on working edge
Side Scraper	N20E08	25	20	5	LV/LV	Secondary flake
Side Scraper	CSP77	48	25	16	LV/LV	Large corner- struck flake with inverse retouch
Notch	N19E10	35	40	11	LV	Notch with 11mm LD use retouch
Scraper/ Planer	CSP95	57	59	43	LD	Chert block with retouch on one lateral edge
Trianguloid Uniface	N20E09	29	30	5	LD/DD	LD and DD retouch forming pointed corners

Notes: All tools are made of Haldimand chert. LV-Lateral Ventral, DD-Distal Dorsal, PD-Proximal Dorsal, LD-Lateral Dorsal

Gravers

There are three gravers in the Stelco 1 assemblage. Two of the gravers are made on small flakes that show evidence of utilization (use retouch) on more than one edge. The specimen from N21E10 is made on a biface thinning flake and has a single, finely flaked graver spur on the distal end (Figure 3.h). The second graver, from N19E09, has two spurs on the distal end, both created by fine retouch. It is made on a small primary flake.

The third graver has a spur that was manufactured in a different manner. One side of the graver spur is finely flaked and the other side is created by a snap or break that creates the graver point. This method of manufacture is common to Paleo-Indian gravers (Deller and Ellis 1992: 70). The Stelco 1 specimen (CSP70) is made on a large, thick primary flake and displays a substantial rounded and polished spur at the distal end (Figure 3.i).

Although gravers or "spurs" are common Paleo-Indian tool types, they are not well known in Hi-Lo assemblages. For example, Ellis and Deller describe only one graver/borer in their 1982 paper in Hi-Lo assemblages (Ellis and Deller 1982: 15). The presence of three gravers in the small Stelco 1 assemblage demonstrates that gravers are common in at least some Hi-Lo assemblages and indicates another aspect of technological continuity from early Paleo-Indian times.

Table 4 Stelco 1 Graver Data

Prov.	L	W	T	Spur Location	Flake Type	Comment
CSP70	49	23	11	1 distal	Pri	- made on a thick primary flake
N19E09	16	13	3	2 distal	Pri	- LD and LV retouch
N21E10	18	16	3	1 distal	Sec	- very fine retouch

L=Length W=Width T=Thickness Pri=Primary Sec=Secondary LD-Lateral Dorsal LV=Lateral Ventral

Retouched and Utilized Flakes

For analytical purposes utilized flakes are here defined as flakes with edge damage consisting of use retouch to a height of less than 1 mm. Also, polish and/or edge rounding from use are often present. Retouched flakes display retouch between 1 and 2 mm in height, or retouch that is greater than 2 mm in height but discontinuous along the working edge. As noted above, tools with continuous retouch greater than 2 mm in height are classified as scrapers.

Table 5 Stelco 1 Site
Retouched Flake Data

Prov.	L	W	T	Retouch Location	Flake Type
N20E09	16	18	4	DD	Pri
CSP91	-	16	3	LV	Pri
CSP26	17	24	2	DD	Sec
CSP21	19	17	4	DD/LD	Fra
CSP86	48	42	7	DD	Fra
CSP53	-	21	5	LD/DD/LD	Fra
CSP68	28	35	8	DD	Pri
Mean	25.6	24.7	4.7		
Std Dev	12.0	9.3	2.0		

Note:DD=Distal Dorsal LV=Lateral Ventral LD=Lateral Dorsal Pri-Primary Sec=Secondary
All tools are made of Haldimand chert except CSP53 which is made of Onondaga chert.

There are 7 retouched flakes and 19 utilized flakes in the Stelco 1 collection. The retouched flake data is summarized in Table 5, while the utilized flake data is presented in Table 6. Not surprisingly, retouched flakes are generally larger than utilized flakes. Utilized flakes are almost as long as retouched flakes but they are much more narrow. Interestingly, most retouched flakes exhibit distal dorsal retouch, while on utilized flakes the use wear location is much more variable (Tables 5 and 6). The fact that the retouched flakes have similar retouch locations supports the idea that they were intentionally selected, used in a similar manner, and maintained.

The large number of expedient tools at Stelco 1 has interesting implications. Early (Fluted Point) Paleo-Indian sites are notable for their highly curated tool assemblages, with most tools displaying extensive retouch (Ellis and Deller 1992). Expedient tools such as utilized flakes are not as common as they are on later assemblages. The large number of informal tools in the Stelco 1 assemblage may reflect a change to a more expedient toolkit typical of the Archaic (Ellis et al. 1990: 78). Alternatively, this aspect of the assemblage may simply be related to the site's close proximity to the major lithic source preferred by Hi-Lo groups in this region. In other words, flake tools may have been used briefly and readily discarded rather than curated, because lithic material was in abundant supply.

Table 6 Stelco 1 Site
Utilized Flake Data

Prov.	L	W	T	Wear Location	Flake Type
N17E10	34	14	5	LV	Fra
N20E09	31	30	8	DD	Pri
N18E09	18	11	3	LD/LV	Pri
N18E09	14	11	2	LV	Fra
N17E09	-	11	3	LD	Fra
N21E10	14	11	3	DV	Sec
N20E10	20	14	5	DD	Pri
N18E10	-	16	3	LV	Fra
N18E08	30	15	6	LD	Pri
N23E10	15	13	2	PD	Fra
N15E08	15	18	4	DD	Pri
N13E06	17	15	5	LD	Fra
N17E09	27	17	6	DD	Sec
CSP21	21	17	4	DD	Fra
CSP13	-	14	2	LDV	Fra
CSP100	42	54	12	LDV	Pri
CSP107	21	19	3	DD/LD	Fra
CSP113	-	11	3	LV	Sec
CSP114	-	-	2	LV	Fra
Mean	21.8	16.0	4.2		
Std Dev	8.4	9.9	2.4		

Note: DD=Distal Dorsal, LV=Lateral Ventral, LD=Lateral Dorsal, PD=Proximal Dorsal, LDV=Lateral Dorsal Ventral, Pri=Primary, Sec=Secondary, Fra=Fragment
All tools are made of Haldimand chert.

DISCUSSION

Although only a small area of the Stelco 1 site was excavated and the artifact sample recovered is not large, the significance of the site outweighs the size of its collection. Very few Hi-Lo components have been excavated and reported upon and our knowledge of this manifestation is quite limited. Thus the Stelco 1 investigations contribute to our understanding of the Hi-Lo phase in several areas, including lithic raw material utilization, settlement patterns, and tool assemblages.

The dominance of Haldimand chert in the Stelco 1 assemblage provides further support for the suggestion that this material was a preferred chert source in Early Holocene southern Ontario (Parker 1986a, 1986b). The inhabitants of the site would have had easy access to high quality Onondaga chert from several outcrops in the region, yet they used Haldimand chert almost exclusively (Figure 1). This is very surprising since the Stelco 1 site was closer to the Onondaga sources near Villa Nova than the Haldimand sources near Decewsville. It is also notable that Onondaga chert was one of the most popular materials throughout Ontario's prehistory, and is often of higher quality than Haldimand chert.

The Hi-Lo preference for Haldimand chert is also found beyond the immediate source area. Haldimand chert is the most common chert type (38%) for Hi-Lo points found in Middlesex County, which is 130 km west of the Haldimand chert source (Ellis and Deller 1982: 7). Moreover, Area C of the Welke Tonkonoh site in Middlesex County is attributed to a Hi-Lo occupation and is dominated by Haldimand chert (Parker 1986b). This implies that the Hi-Lo groups in Middlesex County were either involved in extensive long-distance trade to obtain this material or had very large territories and traveled to the Haldimand chert source for direct procurement.

Parker (1986b: 150), following Ellis (1984), suggests that Late Paleo-Indian Hi-Lo groups were foragers who pooled their risks across a broad segment of the population . This practice may have involved the maintenance of group contacts and group identity over large areas. One of the ways to accomplish this, symbolically and socially, may have been through the shared use of the distinctive high quality Haldimand chert. In this case, material culture (Haldimand chert) may have played an active role in differentiating Hi-Lo groups from other neighboring Late Paleo-Indian groups. Such use of material culture to actively establish contrast has been observed in ethnoarchaeological studies (Hodder 1982, 1986).

With respect to settlement patterns, Deller noted that former glacial lake beach ridges appeared to be favoured locations for Hi-Lo sites, based on his work in Middlesex County (Deller 1979). He suggests that these well drained upland locations overlooking low-lying former lakebeds may have been good hunting locations (Deller 1979: 12). The Stewart and Welke-Tonkonoh sites in Caradoc Township are examples of large multi-component sites located on what are apparently former glacial lake beach ridges (Figure 1; see Ellis and Deller 1982). Roberts has noted a similar pattern of Hi-Lo sites located on high land overlooking bogs in areas bordering the north shore of Lake Ontario (Roberts 1985:111). Another site type, the lithic workshop, is represented by the Allan site, located beside the Onondaga escarpment near the Haldimand chert source in North Cayuga Township (Parker

1986a, 1986bb).

Compared to these known Hi-Lo site types, the Stelco 1 site is clearly different. Its location, on a flat undifferentiated clay plain, suggests an aspect of Hi-Lo settlement patterns that is poorly understood. The small size of the site suggests a brief occupation by a small group. The assemblage is dominated by several varieties of scrapers and expedient flake tools, while bifaces, preforms and projectile points are poorly represented.

Table 7 compares the artifact types found at Stelco 1 with those from Welke-Tonkonoh (W-T), Grids A and C, and the Stewart site (based on data from Ellis and Deller 1982).[1] Some fundamental differences are noted in the composition of the W-T Grid A and Stewart assemblages compared to those from W-T Grid C and Stelco 1. In brief, projectile points and various bifaces make up 85-100% of the W-T Grid A and Stewart collection, while the W-T Grid C and Stelco 1 collections include 65% and 95% unifaces, respectively. These data must be interpreted with caution since both Stewart and W-T Grid A are markedly multi-component, which may bias their collections towards diagnostic artifacts. Nonetheless, this dichotomy strongly suggests that these assemblages are highly task specific, with the biface dominated toolkits associated with point production, hunting and re-hafting, and the uniface dominated toolkits associated with scraping activities. Further, the spatial separation of these assemblages on Welke-Tonkonoh indicates activity differentiation at the large sites, while the presence of small sites dominated by unifacial tools indicates that they were established primarily to conduct activities involving uniface use (i.e. scraper related activities such as hide processing).

Interestingly, this conclusion is similar to the results of recent research on small Early Paleo-Indian sites, which have yielded similar biface dominated and scraper dominated assemblages (Ellis and Deller 1991; Jackson and McKillop 1991; Timmins 1994b; Wortner and Ellis 1993). The demonstration of similar assemblage patterning on Late Paleo-Indian Hi-Lo sites indicates continuity in site structure, logistical strategies and technological organization from Early to Late Paleo-Indian times.

The apparent single component nature of the site offers advantages with respect to interpreting the site assemblage. Fundamentally, this characteristic means that we can assume that all the artifacts recovered pertain to the Hi-Lo component, and perhaps to a single occupational event. Hence we can comment upon the nature of Hi-Lo assemblages as previously described by Ellis and Deller (1982). Of course, since the Stelco 1 assemblage is dominated by specialized unifaces, it is only possible to comment on the unifacial tools that are represented.

Tool types found at Stelco 1 and at other Hi-Lo sites include end scrapers made on elongated corner-struck flakes, end scrapers with spurs at the corners of their bit ends (Ellis and Deller 1982), and trianguloid unifaces or pointed scrapers (Parker 1986b). The presence of these tools at Stelco 1 confirms their Hi-Lo association.

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[1] The Allan site is excluded here due to its multi-component nature.

Table 7 Hi Lo Phase Assemblage Comparisons

Artifact Type	Welke-Tonkonoh				Stewart		Stelco 1	
	Grid A		Grid C					
	f	%	f	%	f	%	f	%
Bifaces								
Points	33		6		9		1	
Thinning Stage Preforms	3				1			
Completed Preforms					1			
Backed Biface					1			
Other Bifaces	5		1		1			
Total Bifaces	41	83.7	7	35.0	13	100.0	1	5.3
Unifaces								
Circular End Scraper			2					
End Scraper on a Blade	1							
End Scraper on a Corner-Struck Flake	1						1	
Other End Scrapers	1		3				2	
Side Scrapers	3						2	
Beaked Scrapers	2							
Notches							1	
Scraper/Planer							1	
Triangular Uniface							1	
Gravers							3	
Retouched Flakes							7	
Other Unifaces			8					
Total Unifaces	8	16.3	13	65.0	0	0.0	18	94.7
TOTAL	49	100.0	20	100.0	13	100.0	19	100.0

(Welke-Tonkonoh and Stewart data from Ellis and Deller 1982.)

some tool forms in the Stelco 1 assemblage have not been found on other Hi-Lo sites and may represent additions to the Hi-Lo tool repertoire. These include the side scraper with alternate retouch along one edge and the expanding scraper with ventral retouch (Table 3). In addition, the notch in the collection occurs as a single function tool rather than as one of several working edges on a multi-functional tool, which is usually the case in the other reported Hi-Lo assemblages (Ellis and Deller 1982:14).

The massive scraper planer made on a large block of chert is a new tool form, apparently unique among Hi-Lo sites reported to date.

While gravers are known from Hi-Lo sites, there is a relatively high number of them at Stelco 1, given the small size of the collection. This characteristic may be related to the task specific nature of the assemblage.

Finally, there appear to be an unusually high number of retouched and utilized flakes at Stelco 1. This pattern may also be task-related, but it could be a function of raw material availability.

As noted above, the Stelco 1 site lacks the range of bifacial tools described from other Hi-Lo sites. These forms include thinning stage preforms, completed preforms, backed bifaces, twist drills, and bulbous and squared base bifaces (Ellis and Deller 1982:10).

As Figure 2 shows, the MTO excavations at Stelco 1 covered less than half of the southerly surface artifact cluster. Detailed analysis of artifact spatial distributions was not attempted since the northerly artifact cluster is known only through surface collections. Both the northern and southern artifact clusters were well defined on the surface, but interpretation of the spatial structure of the site must await further investigation.

CONCLUSIONS

Analysis of the Stelco 1 assemblage has confirmed the importance of Haldimand chert as a highly favoured lithic raw material among early Holocene groups in southwestern Ontario. The reasons for this preference over other easily obtainable cherts remain unclear. Direct procurement and large band territories, exchange, risk pooling, and maintenance of group identity, or combinations of these factors, have all been suggested as possible explanations for this phenomenon.

In addition to the documentation of three new uniface tool forms associated with Hi-Lo, the Stelco 1 analysis has demonstrated that there is substantial variability among Hi-Lo assemblages. The collection is dominated by unifacial tools, including several varieties of scrapers, notches, gravers, retouched flakes, and utilized flakes. This stands in contrast to the biface dominated assemblages from Welke-Tonkonoh Grid A and the Stewart site, but it is similar to the assemblage from Grid C of the Welke-Tonkonoh site. These differences in assemblage composition suggest the presence of task specific activity areas on larger sites as well as task specific smaller sites within Hi-Lo settlement

systems. These findings are similar to the results recently obtained from analyses of Early Paleo-Indian sites and suggest substantial continuity in settlement patterns and logistical strategies from Early to Late Paleo-Indian times.

Research on the Late Paleo-Indian Hi-Lo manifestation in the Great Lakes region has proceeded slowly over the past decade. This is demonstrated by the fact that a minor excavation such as the one reported here can yield new insights into this poorly known period of Ontario prehistory. It is hoped that this paper will stimulate further research on the Stelco 1 site and on related Hi-Lo components in the lower Great Lakes.

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